

Patent claims

1. A method for controlling the transmitting power in
5 a mobile radio system, in which a signal of a
transmitter (1), received by a receiver (2) via a
transmission channel of the mobile radio system,
is evaluated and in dependence thereon a power
10 control information item (6) is generated and
transmitted to the transmitter (1), and
in which the transmitting power is adjusted in
dependence on the power control information item
(6) in the transmitter (1),
15 in which the behavior of the transmission channel
is estimated,
in which the transmitting power needed is
estimated in dependence on the result of the
estimation of the behavior of the transmission
20 channel,
in that the power control information item (6) is
generated on the basis of the estimated
transmitting power needed and is transmitted to
the transmitter (1),
characterized in that
25 the behavior of the transmission channel is
estimated by prediction and in that the
transmitting power needed in future is estimated
in dependence on the result of the prediction of
the behavior of the transmission channel.
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2. The method as claimed in claim 1, characterized in
that the behavior of the channel state is
estimated by predicting the channel impulse
response.

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3. The method as claimed in claim 1, characterized in that the behavior of the channel state is estimated by predicting the carrier/interferer ratio.

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4. The method as claimed in one of claims 1 to 3, characterized in that the behavior of the transmission channel is estimated regularly, the interval between the individual estimates and the period over which the behavior of the transmission channel is predicted being in each case selected to be shorter than the coherence time of the transmission channel.
5. The method as claimed in one of the preceding claims, characterized in that the value of the power control information item (6) is adjusted to be linearly dependent on the result of the estimation of the behavior of the transmission channel.
6. The method as claimed in one of the preceding claims, characterized in that the power control information item (6) is generated in dependence on the estimated behavior of the transmission channel and additionally in dependence on the instantaneously measured received level of the signal received by the receiver (2), the proportion of the estimated behavior of the transmission channel in the generation of the power control information item (6) being adapted in dependence on the characteristic behavior of the transmission channel.
7. The method as claimed in claim 6, characterized in that the transmitter (1) or receiver (2) is a mobile unit and in that the proportion of the estimated behavior of the transmission channel in the generation of the power control information (6) is reduced at higher speeds of the mobile unit.

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8. The method as claimed in claim 7, characterized in that the instantaneous speed of the mobile unit is estimated and in that the proportion of the estimated behavior of the transmission channel in the generation of the power control information item (6) is adjusted in dependence on the estimated speed of the mobile unit.
9. The method as claimed in claim 8, characterized in that the channel impulse response of the transmission channel is measured and in dependence thereon the coherence time of the transmission channel is estimated in order to derive therefrom the instantaneous speed of the mobile unit.
10. A mobile radio system comprising a transmitter (1) and a receiver (2) for receiving a signal of the transmitter (1) transmitted via a transmission channel of the mobile radio system and for evaluating the received signal in order to generate in dependence thereon, and to transmit to the transmitter (1), a power control information item (6), the transmitter (1) being constructed in such a manner that it adjusts the transmitting power in dependence on the power control information of the receiver (2), in which the receiver (2) is constructed in such a manner that it estimates the behavior of the transmission channel in dependence on the received signal, determines the transmitting power needed in dependence on the result of the estimation of the behavior of the transmission channel and generates, and transmits to the transmitter (1), the power control information item (6) on the

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basis of the necessary transmitting power determined,

characterized in that the receiver (2) is constructed for performing the method as claimed in one of claims 1-9.

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11. The mobile radio system as claimed in claim 10, characterized in that the receiver (2) generates the power control information item (6) in the form of a command for adjusting the transmitting power directed to the transmitter (1).

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12. The mobile radio system as claimed in claim 11, characterized in that the mobile radio system is a CDMA mobile radio system.

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